CS344M Autonomous Multiagent Systems Spring 2008

Prof: Peter Stone

Department of Computer Sciences The University of Texas at Austin

Good Afternoon, Colleagues

Are there any questions?



Good Afternoon, Colleagues

Are there any questions?

- Mixed Nash equilibria?
- What can't game theory simulate?
- What if one player isn't rational?
- Doran's research



 Faculty candidate on Thursday at 11am: "When Game Theory Isn't Enough: Engineering Agents for an Open and Imperfectly Rational World" Sevan Ficici, Harvard



- Faculty candidate on Thursday at 11am: "When Game Theory Isn't Enough: Engineering Agents for an Open and Imperfectly Rational World" Sevan Ficici, Harvard
- Another one April 8th: "Computing Equilibria in Games" Konstantinos Daskalakis, UC Berkeley



Mike Jordan on statistical tests



• Is the right half of the class or the left half taller?



- Is the right half of the class or the left half taller?
- Did you weigh less after the class than before?



- Is the right half of the class or the left half taller?
- Did you weigh less after the class than before?
- Who's better at tetris? Adam or Brandon?



- Is the right half of the class or the left half taller?
- Did you weigh less after the class than before?
- Who's better at tetris? Adam or Brandon?
- Who's better at video games in general?



• Test: Your team better than UvA vs. Brainstormers



- Test: Your team better than UvA vs. Brainstormers
- Test: Your team better than UvA vs. a set of 20 opponents



- Test: Your team better than UvA vs. Brainstormers
- Test: Your team better than UvA vs. a set of 20 opponents
- What if neither is significant?



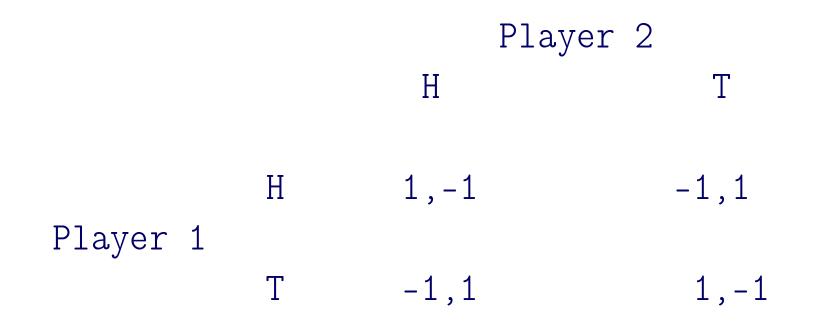
Matching Pennies

- We each put a penny down covered
- If they match, I win, if they don't, you win



Matching Pennies

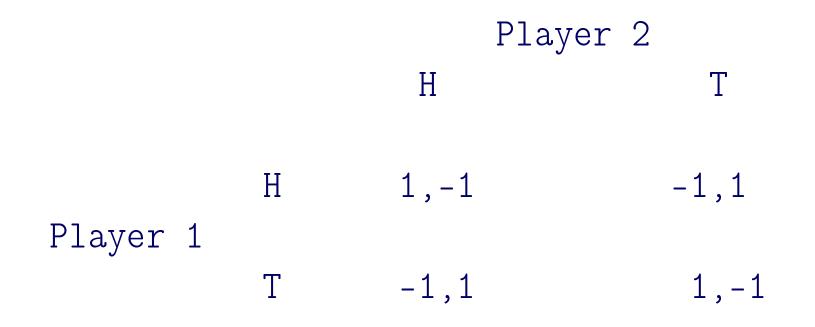
- We each put a penny down covered
- If they match, I win, if they don't, you win





Matching Pennies

- We each put a penny down covered
- If they match, I win, if they don't, you win



Nash equilibrium?



- Nash equilibrium?
- Why is anything else **not** an equilibrium?



				Player	2	
			Action	1	Action	2
	Action	4	ЛО			
Player 1	Action	T	4,8		2,0	
•	Action	2	6,2		0,8	



Mixed strategy equilibrium Player 2 Action 1 Action 2 Action 1 4,8 2,0 Player 1 Action 2 6,2 0,8

• What if player 2 picks action 1 3/4 of the time?



Mixed strategy equilibrium Player 2 Action 1 Action 2 Action 1 4,8 2,0 Player 1 Action 2 0,8

- What if player 2 picks action 1 3/4 of the time?
- What if player 2 picks action 1 1/4 of the time?



Player 2 Action 1 Action 2 Action 1 4,8 2,0 Player 1 Action 2 6,2 0,8

- What if player 2 picks action 1 3/4 of the time?
- What if player 2 picks action 1 1/4 of the time?
- Player 1 must be indifferent between actions 1 and 2



 Player 2

 Action 1
 Action 2

 Action 1
 4,8
 2,0

 Player 1
 Action 2
 6,2
 0,8

- What if player 2 picks action 1 3/4 of the time?
- What if player 2 picks action 1 1/4 of the time?
- Player 1 must be indifferent between actions 1 and 2
- Player 2 must be indifferent between actions 1 and 2

Player 2 Action 1 Action 2 Action 1 4,8 2,0 Player 1 Action 2 6,2 0,8

- What if player 2 picks action 1 3/4 of the time?
- What if player 2 picks action 1 1/4 of the time?
- Player 1 must be indifferent between actions 1 and 2
- Player 2 must be indifferent between actions 1 and 2

Do actual numbers matter?

